

**ENVIRONMENTAL MEMORANDUM**

**Red Chris Development Company Ltd.**  
200–580 Hornby Street, Vancouver, BC V6C 3B6

Date: Feb 9<sup>th</sup>, 2016

Distribution: Red Chris Monitoring Committee

Cory Koenig, Chantel Quock, Jason Nole, and Blaine Lindstrom Environmental Technicians;

From: Mike Polywkan, Environmental Scientist;  
Jack Love, Environmental Superintendent

Re: Red Chris Monitoring Committee Environmental Report Jan 26 – Feb 9<sup>th</sup>, 2016

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**Weather:**

There has been very little to no snowfall until approx. 20-30cm fell on the night of February 5<sup>th</sup> and continued until Feb. 8<sup>th</sup>. Atmospheric temperatures varied daily from -12°C(usually the mornings) to 0°C(by 14:00).

**General Activities:**

- Drilling, blasting, and mining in the pit.
- Extending the footprint of the Rock Storage Area (RSA).
- Some stripping, excavation and drilling in the North and South of the TIA.

**Water Management:**

- Pit sump regular sampling completed. There will be a 5in30, (5 samples in 30 days) program set up during the spring melt to monitor any water from the sump that had frozen.
- TIA-Drilling in the South TIA has finished with the addition of 2x12" wells located on the west side of Black lake, and the second 12" well located near monitoring well MW14-2 s/d.
- Water management continues to be challenging for Dam toe stripping and excavation. This is closely observed and documented.
- Sump proposal below TIA dam toe idea is being initiated to deal with saturation and add to the water level inside the TIA. This water is planned to be directly pumped into the TIA from this area of the dam toe. This will also reduce the amount of water based on the pump specifications flowing into the NRD Pond from both the ground and surface.
- Additional Pumps are also being installed into groundwater wells WW15-02, MW15-02+MW15-01 intermittently to help reduce saturation of the toe material placement, so as construction activities are not stagnant in 2016. Continued communications between departments is vital in the forward moving progress here. NRD Pond levels will have to be monitored daily to ensure that no release of water flows past the NRD Pond.
- South TIA road and ditch location being inspected and mapped by survey dept.
- The North Reclaim Dam Discharge weir and channel is full of ice, efforts to remove the ice proved to help for the short term.
- Collected first set of snow samples at both new sampling sites.

**Waste Management:**

- Lagoon blowers are still turned off. Monitoring will be continued per usual and will be documented. There should not be any wastewater discharging this winter.
- RCDC Waste Management Guidelines, Recycling and Spill response power point presentation has been created and will initiate separate departmental group presentations starting next shift.

**Spills and Incidents:**

- Jan 2, 2016: 500 L diesel spill in the main zone of the pit. PEP reportable. DGIR #: 152806 (figures 15 & 16)

- Spill Feb 1<sup>st</sup> –At conveyor #2 area of conveyor road, A full tote (1,100L) of IPAC was punctured by a zoom boom fork and spilled onto ground. Area was cleaned up and was reported externally to PEP. DGIR#153129. No watercourse or environment outside of the RCDC property was affected. Contaminated soil was properly placed at 18.5km cont. soil area properly. This product is considered environmentally friendly and is not regulated in Canada.

**Fuel Management:**

- Inspected all fueling stations and supplied as needed.

**Wildlife Management:**

- Cow and calf continue to be spotted further away from camp and down towards TIA near 3.5km and rear of Lagoon. Ptarmigan, Lynx and hares have also been spotted inside the mine site property.

**Photos:**



Trail creek just below Black Lake showing untypical stream melting.



W4 site hydrology station covered in ice over the high water marks of the banks of trail creek.



Hydrology station W20 also completely covered in ice over the banks of Quarry creek.



Downstream of W20, the same untypical melting and freezing has occurred at W69 hydrology site, Quarry creek.



Pit sump (site W75) water levels remain approx. 1.5m below the previous height and no pumping has occurred into it from either the Main or East zone pits.





Pit Repeater channel tower successfully placed atop the highest point improving radio communication around the mine site.



IPAC totes (an environmentally friendly and un-regulated product in Canada) were being stacked near the crusher well and were requested to be placed in a more appropriate location.



PAX delivery boxes are being used to store the used PAX bags near the mill.



Snow samples for 2016 were collected from both new replacement sites, lower SSSDAM and upper SSRSA.



Erosion control on weir 4 to stop the water not flowing through the "V" notch by removing some large boulders directing flows into the bank away from the measuring notch.





After boulders were removed and sandbags installed, approx. 95% of all the water reaches the "V" notch resulting in the head of the water rising on the staff guage .02m.





Pump installation at WW15-02 to reduce the saturation between the two dams.



MW15-02 well pump also helped with the saturation.



February 2<sup>nd</sup>, 2016 mourning view from the top of the TIA road looking at the spatsizi ranges.



North Reclaim Dam showing flow channels of surface water entering the pond.





Site W40 was one of many sites that could not provide water during the quarterly surface water samples, here due to the Klappan River being completely frozen.



Unusually thick, frozen surface water site W3 on 22.5km of the Klappan road.



Tailings Impoundment Area water levels are slowly increasing. The dam spans across the left, to the far right is the saddle dam beginning.





Looking south from the North Relcain Dam showing the vast size of the TIA almost to the North East Arm valley to the far left.